

## **SOURCE INVENTORY**

### **CATEGORIES # 755 - 758**

### **UNPAVED ROAD TRAVEL**

#### **1999 EMISSIONS**

##### *Introduction*

Fugitive particulate emissions result from motor vehicles traveling on various types of unpaved road surfaces. Four types of unpaved roads are considered:

- 1)City and County
- 2) Parks and Forests
- 3)Bureau of Land Management and Bureau of Indian Affairs
- 4)Farm .

##### *Methodologies*

The number of miles of each type of unpaved roads (except for farm roads) were taken from Maintained Public Record Mileage for 1993 from Caltrans. The total VMT for each type of road was estimated by assuming 10 miles of travel per day for each mile of unpaved road.

For farm roads, county specific number of acres for various types of crops were taken from California Department of Food and Agriculture Summary of Crop Acreage Harvested in 1993. It was estimated that for each 40 acre lot of crop, there is 175 miles of travel per year.

Emission factor for all types of road used is assumed to be 2.27 pounds of PM<sub>10</sub> per vehicle mile traveled. This is the average of 22 unpaved road dust emission tests performed in San Joaquin Valley for light-duty truck traffic. The measurements were performed as part of studies by University of California, Davis (UCD) "Evaluation of the Emissions of PM<sub>10</sub> Particulates from Unpaved Roads in the San Joaquin Valley, Final Report, April 1994" and the Desert Research Institute (DRI) "Effectiveness Demonstration of Fugitive Dust Control Methods for Public Unpaved Roads and Unpaved Shoulders of Paved Roads, Final Report, December 1996".

Emissions for 2000 were estimated using growth rates described in the following section.

##### *Temporal Variations*

It was assumed that wet days (with precipitation over 0.01") prevent these emissions from occurring. The VMT is also assumed to drop significantly during winter months. ARB combined these factor to develop monthly variations for each county.

Activity is assumed to be the same during the week Daily activity is assumed to take place primarily during the day.

## **TRENDS**

Two growth rates were used for these categories to estimate 1960-2010 emissions.

For farm roads, annual activity was assumed to grow by agricultural production. This growth code was developed by ARB.

For the remaining categories, in the absence of better data, annual variation activity was assumed to follow population by county.